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Kugler's Criterion for Determining the Order of the Months in the Earliest Babylonian Calendar. — By GEORGE A. BARTON, Professor in Bryn Mawr College, Bryn Mawr, Pa.¹

In a paper read before the Oriental Society a year ago, the difficulties which confront the students of the early Babylonian calendar were pointed out, and some of the consequent diversity of opinion concerning it among scholars was noted. During the year that has passed Father Kugler has proposed in his *Sternkunde und Sterndienst in Babel*, Buch II, II. Teil, 1. Heft, p. 213ff., a new criterion for determining the order of the months. Many of the tablets have at the end of the account the words BA-AN or GAR-AN preceded by a numeral. Kugler holds that these numerals refer to monthly payments, and that the number refers to the payment of the month previous to that in which the tablet is dated. It is known from a passage in Gudea² that EZEN-^dBAU was the first month. Kugler finds a tablet dated in EZEN-^dBAU which concludes with XII BA-AN, which he takes to mean 12 payments, and to refer to the distribution made in the preceding months. He holds that the accounts were not written up until the month following that in which payments were made. This accounts for the number 12 on a tablet in the month EZEN-BAU. From this one fixed example he makes a general rule. A tablet that ends with III BA-AN or III GAR-AN belongs to the fourth month; one that has at its close VIII BA-AN belongs to the ninth month; if the months are named, their position in the calendar is, he holds, fixed.

Kugler himself is, however, confronted with the difficulty that, when the month name is the same, the numbers sometimes vary. Thus in the fourth year of Urkagina a month is marked IV BA-AN and in his fifth year, III BA-AN. Kugler

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² Stat. E V. 1-2; G III. 5.
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concludes that an intercalary month had been inserted in Urkagina's fourth year, and had pushed the months forward one place. It seems strange that the intercalary month should be introduced early in the year and not at its end, but for the moment we pass that difficulty by.

Langdon has tentatively accepted Kugler's rule, declaring that "the principle introduced by the genius of Kugler can be employed in settling the position of a month, but that certainty can be obtained only by the consistent evidence of several tablets."¹ Pinches accepts it also in theory,² though he does not place much reliance on it.

If Kugler had really discovered a principle which would throw light on this difficult problem, no one would rejoice more than I. Unfortunately his induction is contradicted by much evidence that was in his hands when he wrote, and since his work appeared Dr. Hussey's important publication of Harvard tablets has given us a much larger number of texts by which to test Kugler's principle. When tested by all the available material, the theory utterly breaks down. In the case of EZEN-⁴BAU the month for which the most material exists, two tablets dated in this month bear the desired subscription XII BA-AN, viz: TSA 10; H³ 27, but one has the subscription XI BA-AN (DP 112), another XI GAR-AN (Nik.⁴ 64), while two have for their subscription, IV BA-AN, (TSA 20; H 10). If, then, Kugler's principle were correct, EZEN-⁴BAU would occur three times in the year; it would be at once the first, the fifth, and the twelfth month! Each of these positions for it is supported by two texts, so that there is only Gudea's inscription to act as an arbiter among them. Still another tablet (Nik. 1), if this rule were followed, would make AMAR-A-A-SIG-GA also the first month!

Again the evidence is conflicting in the case of EZEN-BULUK-KU-⁴NINA. Kugler's principle would make it the second month on the authority of Nik. 57 and H 6, but the tenth month on the authority of Nik. 6. Similarly the month SIG-⁴BA-U-E-TA-GAR-RA would be the fourth month on

¹ PSBA. XXXIV, 257.

² PSBA. XXXV, 24.

³ Dr. Hussey's *Sumerian Tablets in the Harvard Semitic Museum*.

⁴ Nikolski's publication of Likhatchef's collection.

the authority of H 9, but the twelfth month on the authority of Nik. 63. Were we to take into account month names which vary in their spelling, but which probably refer to the same month, further proof of the impossibility of deducing any rule from these subscriptions might be obtained, but such proof is not needed.

In reality the tablets on which these subscriptions are found are not all accounts of the same class. Those labeled GAR-AN with one exception record the distribution of grain for the wages or food of donkeys and the men in charge of the donkeys. The donkeys assume the most important place in these tablets because they are placed first and are most numerous. This statement is true of TSA 34, 35, RTC 51, Nik. 57, 64, 66, H 31, 34, 35, 36. The one exception occurs in RTC 55, which deals exclusively with                                <img alt="cuneiform symbol for grain" data-bbox="650 77

DP 112, Nik. 1, H 20, 21, 22 and 23. These include maid-servants, pages, wool-workers (weavers), and a few men.

These tablets, which range in date from Lugaland's sixth year to Urkagina's sixth year, all state that a certain Lugal-pa-ud-du was SIB-DUN; i. e. the same officer was in charge of all these payments.

Another group contains a greater variety of workmen and takes in both men and women. This group includes TSA 18, RTC 54, DP 113, 114, 116, 117, Nik. 2, 16, H 15, 26 and 27. This series is by no means so uniform as the other two; it contains a far greater variety of workers, some tablets mentioning but one or two classes and others a considerable number. Thus TSA 18 records the pay of NAGAR, a carpenter, KI-SIG, "workers in wool" (weavers?), women of the palace, and QA-ŠU-DU, whose occupation is not determined. RTC 56 mentions GIN-UŠ "weighers", RI-ḪU bird-catchers, SIB-GUD "ox-herds", NU-ŠAR "gardeners", DUP-SAR "scribes", NAGAR "carpenters", SIB-AMA-GAN-ŠA "herders of she-asses", SIB-ANŠU "ass-herds", SIB-UDU-SIG "shepherds of wool-sheep", and ḪA-A-DUG-GA "fresh-water fishermen". To these some of the others, as DP 113, and Nik. 9 add IGI-NU-DU "assistant gardeners", DU-A-KUD "diggers", NI-DU "gate keepers" and others. This list is by no means exhaustive. Some of the tablets mention PA-IL "porters" NIMGIR "stewards", SAG-NANGA "chiefs of districts" or "sections", ŠU-I "branders" or "barbers" etc. This group of tablets at times seems almost identical with the first group, and at times almost identical with the second, since, as in the modern east, women seem to have been employed in out-door work. That all such accounts should begin their year at the same time is pure assumption; the fact that these numbers, when attached to the same month, differ so much is proof that, even if these accounts recorded monthly payments, such was not the case.

Kugler's criterion thus turns out to be no criterion at all. It rests upon no basis of fact.

As Kugler's criterion breaks down, his evidence for the year with an intercalary month fails. We can, however, from other evidence prove that the fourth year of Urkagina was an intercalary year. As pointed out last year, DP 99, a tablet dated in the year mentioned, contains the name of an intercalary

month.¹ It was the custom in Babylonia to introduce the intercalary month at the end of the year. The year at Lagash, as previously shown,² began in the autumn. Before the time of the dynasty of Ur a new calendar was introduced according to which the year began in the spring. In the earliest calendar the intercalary month fell about August; in the later calendar, about February. The tablets from the time of the First dynasty of Babylon reveal survivals of both systems; ITU KIN-^aNANA II ^{kam}, which corresponds roughly to August, being the intercalary month in CT VIII, 3, No. 12, while ITU DIR-ŠE-GUR-KUD, which corresponded roughly with February, was ordinarily the intercalary month. Originally the ordinary succession of the months in the year was not disturbed. Intercalary months were inserted at the end. When the beginning of the year had been pushed back to the spring by the introduction of a new calendar, two precedents survived; one favored the introduction of the intercalary month at the end of summer, the other at the end of winter. Both customs can be traced in First Dynasty tablets. If ITU KIN-^aNANA was the intercalary month, the last six months in the year would be pushed forward one place in the enumeration. Perhaps it was this custom which led at least once in the time of the First Dynasty to making Nisan the intercalary month. This appears to have been the case once in the reign of Abishu (cf. CT VIII, 27, No. 320). Of course this would push all the months for the year forward one place, as Kugler supposes was done in the time of Ur-kagina, but it is hazardous to base a theory on the supposition that such irregularities had occurred before the mixture of precedents from different calendars had prepared the way for it.

Kugler has called attention³ to the fact that the label sent by Barnamtarra, wife of Lugalanda, with her contributions to certain festivals (DP 25), shows that the feast EZEN-AB-Ê occurred in the same month as EZEN-^aBAU. This had been recognized by me as a possibility,⁴ though I hesitated to adopt the view. It is, however, undoubtedly correct.

The same label of Barnamtarra (DP 25) affords other

¹ See JAOS. XXXIII, 5ff.

² JAOS. XXXI, 253.

³ Op. cit. 219.

⁴ JAOS. XXXI, 256 n.

evidence which Kugler has overlooked. The mutilated sign at the beginning of col. i, 3 is not DUB as Allotte de la Fuye supposed, but EZEN,¹ and the tablet records the succession of feasts: EZEN-^aLUGAL-ERIM^{ki}, EZEN-AB-Ê, EZEN-KISAL, and EZEN-^aBAU. This testimony confirms the conjecture which I made three years ago on other grounds, that ITU EZEN-^aLUGAL-ERIM immediately preceded ITU EZEN-^aBAU.

Langdon and Pinches have both written on the calendar of Lagash in PSBA during the past year. The latter mentions the calendar only incidentally and with all reserve; the former finds himself beset with difficulties from conflicting evidence. A postscript to his last article² expresses opinions diametrically opposed to those in his previous article.

Nevertheless in this wavering some things of interest have developed. He has now come around to my view that the month name ITU MUL-BABBAR-SAG-E-TA-ŠUB-A-A is a reference to the star Sirius. Since it now appears from the computations of the astronomer, Dr. Frothingham, that at 2500 B.C. the heliac setting of Sirius occurred on April 13th and its heliac rising on July 3rd, Langdon would now interpret ŠUB in the month name as ŠUB "be bright", "shine" rather than ŠUB "incline", "fall". This is probably right. It involves, however, no change in my previous arrangement of the calendar.

Langdon still believes³ that the harvest in Babylonia came in the month May-June, because in the list of months published in VR 43 line 13 calls the month Simanu *araḥ ši-ir-i eburi*, or "month of the grain harvest". The document in question is, however, an Assyrian document; and the statement referred to is an Assyrian statement, true of Nineveh and its environs, but not true of southern Babylonia. Dr. Talcott Williams, whose boyhood was passed in that region, writes me: "The harvest in Mosul comes May-June. It is earlier from Baghdad to Bussorah by at least a month." The statement for Mosul is confirmed by Layard.⁴ Dr. Williams' statement is corroborated by Mr. D. Z. Noorian, who writes: "In southern

¹ Allotte de la Fuye, in a private letter, admits that this is the probable reading.

² Cf. PSBA. XXXV, 49 ff. with XXXIV, 248 ff.

³ PSBA. XXXV, 50. ⁴ *Nineveh and Babylon*, London, 1853, 361 ff.

Babylonia barley is harvested in the latter part of March; immediately after barley wheat is harvested, and so rice, rather early in April. Round about and south of Nippur all tender vegetation dies and dries up by the end of March except such as grows along canals or swamps."¹ This is confirmed by a statement of Hilprecht's.² The harvest at Lagash was earlier by from one to two months than at Mosul. All European scholars have based their theories of the calendar of Lagash on a statement intended for Nineveh. Their systems are accordingly wrong. The persistence of the agricultural seasons, unchanged through the centuries, is the surest datum on which we can build.

Two years ago I was led through pure conjecture to place the month ITU UZ-NE-GÙ-RA-A in the season Dec.-Jan. Recently a section of Hammurabi's laws has seemed to me to be evidence for a Babylonian agricultural custom which confirms the conjecture. In order to make the point clear it is necessary to quote two sections.

§ 57. If a shepherd cause his sheep to eat vegetation and has not made an agreement with the owner of the field, and without the consent of the owner has pastured his sheep, the owner of the field shall harvest the field, and the shepherd, who without the consent of the owner of the field caused his sheep to eat the field, shall pay the owner of the field in addition 20 GUR of grain for each BUR of land.

§ 58. If, after the sheep have come up out of the fields and are mingled³ on the public common by the city gate, a shepherd turn his sheep into a field and cause the sheep to eat the field, the shepherd shall oversee the field which he has caused to be eaten, and at harvest time shall measure to the owner of the field 60 GUR of grain for each BUR of land.

It would seem from these sections of the code that it was a Babylonian custom to let the flocks graze in the fields until after the crops had been planted in the autumn and had

¹ Cf. JAOS. XXXI, 259 n. 1.

² *Explorations in Bible Lands*, p. 446.

³ The verb is *it-ta-ah-la-tu*, which has been a puzzle to scholars. Scheil rendered "et que le troupeau (?) en entier à l'intérieur de la porte s'est déjà glissé"; Harper, "have crowded their way out" (of the gate); Johns, "have passed into" (the common fold by the city gate); Ungnad [sie sich ein Schlupfloch (?)] "gegraben haben"; Rogers, "closed within" (the gate). This Babylonian *ittahhalu* has the force of the 8th stem of the Arabic **خَلَّ**, which means among other significations, "be put in disorder" or "confusion".

grown sufficiently so that crop might be harmed by the grazing of sheep; and that later the flocks were brought in from the fields and turned into a common by the city gate. It seems safe to assume that such an agricultural custom would be general and not confined to one city, and that it would apply to all flocks whether of sheep or goats. As the crops were sown in November the month UZ-NE-GÙ-RA-A "the month they call the goats", i. e. to bring them up from the fields, would naturally fall in Dec.-Jan., where I placed it. The conjecture has, then, some slight confirmation. The changes which a year's progress in knowledge would lead me to make in my previous arrangements of the months are indicated in the following list of month names, in which such new readings of the signs are adopted as seem to be established.

First month, Sept.-Oct.,	ITU-EZEN- ^d BAU
	ITU-EZEN-AB-Ê
	ITU EZEN-AB-Ê-LAGAŠ ^{ki 1}
Second month, Oct.-Nov.,	ITU EZEN-BULUK-KU- ^d NINA
	ITU EZEN-ŠE-KÙ- ^d NINA
	ITU GAR-KA- ^d ID-KA ²
Third month (??), Nov.-Dec.,	ITU ŠI-GAR-MA
Fourth month, Dec.-Jan.,	ITU UZ-NE-GÙ-RA-A
Fifth month, Jan.-Feb.,	ITU GAL-ŠAG-GA
	ITU GAL-UNUG ^{ki} -GA
Sixth month, Feb.-March,	ITU AMAR-A-A-SIG-GA
	ITU AMA-UDU-TUK
Seventh month, March-April,	ITU ŠE-GUR-KUD
	ITU GÀ-UDU-UR
	ITU GÀ-UR
	ITU SIG-BA
	ITU SIG- ^d BA-U-E-TA-GAR-RA-A

¹ H 17.

² The reading is not certain. Dr. Hussey reads ITU NIK-KA-^dID-KA, which would mean, "month of the possession of the rivers", or month of high water. On this reading the month would correspond to May-June, when the water was at its height.

Eighth month, April-May,	ITU UDU-ŠU-ŠE-IL-LA- ^a NINA
	ITU UDU-ŠE-A-IL-LA
	ITU UDU-ŠU-ŠE-A- ^a NINA-TIL-LA-BA ¹
	ITU UDU-ŠU-ŠE-A- ^a NINA
	ITU UDU-ŠU-ŠE-A- ^a NIN-GIR-SU
	ITU ŠE-GAR-UDU
	ITU GŪR-DUB-BA-A
	ITU GŪR-IMI-A-TA
	ITU GUR-IMI-GABA-A
	ITU ŠI-NAM-DUB-NI-BA-DUR-BA-A
Ninth month, May-June,	ITU HAR-RA-NE-MA-A
	ITU HAR-RA-NE-MA-A- ^a NINA
Tenth month, June-July, ITE EZEN- ^a NE-GUN-NA	
Eleventh month, July-Aug.,	ITU EZEN-BULUK-KÙ- ^a NIN-GIR-SU
	ITU EZEN-ŠE-KÙ- ^a NIN-GIR-SU
	(?) ITU ^a NIN-GIR-SU-E-BIL-AN-TA-SUR-RA-KA-NA-NI-DU-DU
	(?) ITU AN-TA-SUR-RA
Twelfth month, Aug.-Sept.,	ITU EZEN- ^a LUGAL-ERIM ^{ki}
	ITU MUL-BABBAR-SAG-E-TA-ŠUB-A-A
Intercalary month, ITU BABBAR-MIN-GÀL-LA-A	

¹ H 26.